भारतीय मानक **IS 9859 (Part 2) : 2023**

Indian Standard

आउटडोर पावर लाइन कैरियर उपकरण की स्थापना और संरक्षण — रीति संहिता

भाग 2 युग्मन उपकरण

(पहला पुनरीक्षण)

Installation and Maintenance of Outdoor Power Line Carrier Equipment — Code of Practice

Part 2 Coupling Devices

(First Revision)

ICS 33.200

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March 2023 **Price Group 4**

Power System Control and Associated Communications Sectional Committee, LITD 10

FOREWORD

This Indian Standard (Part 2) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Power Systems Control and Associated Communications Sectional Committee was approved by the Electronics and Information Technology Division Council.

The Standard was originally published in 1983. This revision has been brought out to bring the standard in the latest style and format of the Indian Standards. In addition, the following changes have been made:

a) *Clause* **4.5** — Reference to *Electricity Act 2003* and Central Electricity Authority (Measures relating to safety and electricity supply) Regulations, 2018 has been provided.

This standard is intended to serve as a guide to installation engineers, contractors and users of power line carrier equipment, so far as coupling devices are concerned.

In view of the consideration that this code is required to be in conformity with the prevailing practice in India, considerable assistance has been derived from *The Electricity Act* 2003 and Central Electricity Authority (Measures relating to safety and Electricity Supply) Regulations, 2018 while drafting this Standard. Reference to the relevant provisions of the Electricity Rules, 2005 has therefore, been made at appropriate places with a view to bringing to the notice of the installation and/or maintenance engineer(s) the statutory regulations concerning this work.

This Standard (Part 2) covers installation and maintenance of coupling devices. The following are the other parts of this Standard:

Part 1 Line traps;
Part 3 Coupling capacitor/CVT.

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

INSTALLATION AND MAINTENANCE OF OUTDOOR POWER LINE CARRIER EQUIPMENT — CODE OF PRACTICE

PART 2 COUPLING DEVICES

(First Revision)

1 SCOPE

This Standard covers the code of practice for the installation and maintenance of coupling devices generally used in outdoor installations.

2 REFERENCES

The Standards given below contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated are valid. All Standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the Standards listed as follows:

IS No.	*Title*
IS 9859 (Part 3) :	Code of practice for installation and maintenance of outdoor power line carrier equipment: Part 3 Coupling capacitors capacitor voltage transformers (*First revision*)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 8997 shall apply.

4 GENERAL REQUIREMENTS

4.1 Before ordering the coupling devices, information shall be exchanged between the owner, switchyard designer, design engineer, installation engineer, maintenance engineer and manufacturer, so that the coupling device is procured to suit the duty, location and installation conditions under which it will operate.

4.2 The technical particulars of the coupling device shall be checked to ensure its suitability with respect to bandwidth and power handling capacity.

4.3 The engineer shall obtain, well in advance, all relevant information about the overall dimensions, weight for transport, installation, etc, of the coupling device. When the parts comprising the coupling device are separately packed, a packing list and drawings showing the assembly shall be supplied to the user.

4.4 The manufacturer shall provide drawings and instructions for the installation and maintenance of the coupling device well in advance of the time of delivery. It is essential that the installation of the coupling device as well as its maintenance is performed in accordance with the instructions given by the manufacturer.

4.5 All electrical installations shall comply with the requirements of *The Electricity Act* 2003 and Central Electricity Authority (Measures relating to safety and electricity supply) Regulations, 2018 made thereunder. If considered necessary, the local authorities concerned in the administration of the rules and regulations in the manner of layout of installation shall be consulted in regard to the rules and regulations that may be applicable.

4.6 The installation shall be carried out only by authorized persons competent to undertake such work under the rules and regulations that may be in force in different states.

5 INSTALLATION

5.1 General

The installation shall be done in such a manner that maximum safety to operational and maintenance personnel is assured.

5.2 Arrangement

5.2.1 The drain coil, main arrester, matching transformer, isolating transformer and earthing switch are normally so constructed as to be suitable for outdoor mounting on the same pedestal structure which supports the coupling capacitor.

5.2.2 Angles, plates or strips of mild steel either bolted or welded to the coupling capacitor pedestal structure may be used for mounting the parts of the coupling device.

5.2.3 The method of mounting the coupling device shall be such as to allow ease of operation, access for connections and inspection from ground level.

5.3 Electrical Connections to the Coupling Device

5.3.1 Special single core cable or bare stiff copper conductor strip may be used for all connections between the coupling device and the coupling capacitor and between the parts of the coupling device. The connecting cable shall be able to with stand a voltage of 5 kV (rms) for 1 minute. Carrier frequency cables may be used to connect the coupling device to the power line carrier terminals.

5.3.1.1 The size of the round conductor shall be 5 mm (diametre), *Min* and rectangular strip 25 x 1.6 mm, *Min*

5.3.2 Direct connection shall be given from the low voltage terminal of the coupling capacitor/CVT to the earthing switch.

5.3.3 The minimum clearances of the bare copper conductor/strip from the earthed structures shall be as per Clause **5.4** of IS 9859 (Part 3)

5.3.4 It shall be ensured that all copper conductor/strip connections are properly tinned by brazing stove. After cooling, the copper strip may be painted. The connecting leads shall be as short as possible.

6 MAINTENANCE

6.1 Periodic inspection of the connections and cleaning are recommended.

6.2 Tightness of waterproof joints shall be checked.

6.3 At the time of maintenance on the coupling device, low voltage terminal of the coupling capacitor/CVT shall be effectively earthed.

ANNEX A
(*Foreword*)

COMMITTEE COMPOSITION
Power System Control and Associated Communication Sectional Committee, LITD 10

Organization	*Representative(s)*
In Personal Capacity (*New Delhi*)	SHRI PANKAJ BATRA **(*Chairperson*)**
ABB India Limited, Bengaluru	SHRI S. R. VIJAYAN
Bhakra Beas Management Board, Chandigarh	SHRI NAVEEN GUPTA
Central Electricity Authority, New Delhi	SHRI FARAZ SHRI PRATEEK SRIVASTAVA (*Alternate*)
Central Power Research Institute, Bengaluru	DR AMIT JAIN SHRI V. SHIVAKUMAR (*Alternate*)
GETCO, Vadodara	SHRI B. B. MEHTA
IEEE India, Bengaluru	SHRI RAVINDRA DESAI
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Indian Electrical and Electronics Manufacturers Association, New Delhi	SHRI J. PANDE SHRI AKEEL KHAN (*Alternate*)
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Indian Institute of Technology, Delhi	SHRI ABHIJIT R. ABHYANKAR
Indian Institute of Technology, Hyderabad	DR PRADEEP KUMAR YEMULA
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Institute of Electrical and Electronics Engineers Standards Association	SHRI SRIKANTH CHANDRASEKARAN
Kalki Communication Technologies Private Limited, Bengaluru	SHRI JOSE THOMAS SHRI VINOO S. WARRIER
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In Personal Capacity	Ms Bindoo Srivastava
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Member Secretary

Ms Alismita Khag
Scientist ‘C’/Deputy Director
(Elecrtonics and Information Technology), BIS

Bureau of Indian Standards

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